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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,966	06/20/2001	Koichi Numata	109237	4446

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EXAMINER	
HANDAL, KAITY V	
ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
11/12/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/883,966	NUMATA ET AL.	
	Examiner	Art Unit	
	KAITY V. HANDAL	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,7,10,13,19-22,25,26 and 31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,7,10,13,19-22,25,26 and 31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-4, 7, 10, 13, 19-22, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi et al. (US 4,934,142) in view of Rao et al. (US 5,758,496) in view of Gadkaree et al. (US 5,750,026).

With respect to claims 1, 3-4, 10, 21-22 and 31, Hayashi teaches an apparatus (figures 1 and 3) comprising a particulate filter unit (15) comprised of a first material/corderite honeycomb coated with a second material/layer of alumina and a layer of catalyst comprising platinum (col. 5, lines 4-7) (which is a known reforming catalyst in the art), and wherein said honeycomb comprises a raw material supply flow passage that causes the raw gas to flow along a first face of the plurality of partitions and that supplies the raw gas to the filter; and a processed gas flow passage that causes reformed and filtered gas to flow along a second face of the plurality of partitions (col. 3, lines 3-8).

Hayashi fails to show details on how the catalyst layer is dispersed in the honeycomb filter wherein: the catalyst is carried by the plurality of partitions on the second face on the side of the processed gas flow passage. Rao teaches a honeycomb filter apparatus (fig. 4, 38) comprised of a plurality of porous (col. 1, lines

48-52) partitions (as illustrated) that are structured to form: a raw material supply flow passage (44) that causes the raw gas to flow along a first face of the plurality of partitions and that supplies the raw gas to the filter (illustrated); and a processed gas flow passage (46) that causes reformed and filtered gas to flow along a second face of the plurality of partitions (illustrated), wherein: the reforming catalyst/oxidation catalyst/(Platinum) (col. 4, lines 36-41) is carried by the plurality of partitions on the second face (illustrated) on the side of the processed gas flow passage (46), and the first face of the plurality of partitions on the side of the raw material supply flow passage is made of an inactive material/ceramic(Abstract)/(e.g. alumina as a ceramic is well known in the art and as evidenced by US 5,956,560 – col. 18, lines 55-65) in order to provide a honeycomb filter which prevents catalyst poisoning due to the carbon particulates present by depositing the catalyst in the processed gas flow passage/(exit channels) (col. 2, lines 9-16).

It would have been obvious to one having ordinary skill in that art at the time the invention was made to apply the catalyst on the plurality of partitions on the second face/outlet channels of Hayashi's honeycomb, as taught by Rao, in order to provide a honeycomb filter which prevents catalyst poisoning due to the carbon particulates present by depositing the catalyst in the processed gas flow passage/(exit channels).

Both Hayashi and Rao teach the need to filter out soot as illustrated (Abstracts); however, they both fail to show details of the honeycomb member having a plurality of gaps having an effective diameter of 10-100 microns. Gadkaree teaches a

honeycomb filtering member (col. 7, lines 54-57) (figures 1-2) carrying a catalyst (col. 8, lines 1-2) including a plurality of gaps having an effective diameter of 0.05-50 microns (col. 15, lines 31-36) in order to provide the honeycomb structure with a particulate filtration mechanism (col. 7, lines 56-57).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the honeycomb of Hayashi comprise a plurality of gaps having an effective diameter of 10-100 microns, as taught by Gadkaree, in order to provide the honeycomb structure with a particulate filtration mechanism.

With respect to claim 13, Hayashi teaches wherein the catalyst/platinum is carried by the filtering member/honeycomb on the second face on the side of the processed gas flow passage (and also on the first face on the side of the raw material supply flow passage) (on the entire surfaces of the gaps) (col. 5, lines 4-8).

With respect to claims 7 and 20, Hayashi teaches wherein the interstitial material forming the filtering member/honeycomb membrane is formed of a porous material/ceramic/(e.g. alumina as a ceramic is well known in the art as evidenced by US 5,956,560 – col. 18, lines 55-65). It is obvious that the filtering member of Hayashi would be porous.

With respect to claim 19, Hayashi as modified discloses all claim limitations as set forth above including a raw material preparing portion/engine (11) that gasifies hydrocarbon fuel and that mixes fuel with air. Regarding limitations recited in claim 19 which are directed to a manner of operating disclosed device, neither the manner

of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

3. Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi et al. (US 4,934,142) in view of Rao et al. (US 5,758,496) in view of Gadkaree et al. (US 5,750,026), as applied to claim 21 above, and further in view of Hwang et al. (US 4,522,894) and Doty et al. (US 5,098,455).

With respect to claim 25, Hayashi as modified discloses all claim limitations as set forth above including a nickel catalyst (col. 6, lines 6-13) but fails to show wherein the apparatus comprises soot removing means for removing soot that has been trapped by the soot trapping means. Hwang teaches power production wherein soot causes a rapid increase in reactor pressure drop when a nickel catalyst is employed (col. 17, lines 16-20). Doty teaches gas filter regeneration comprising soot removing means/glow plug (fig. 1, 20) in order to burn off collected soot and regenerate filtering element (col. 5, lines 51-55) and therefore regenerate said nickel based catalyst.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide soot removing means to Hayashi's modified apparatus, as taught by Doty, in order to burn off collected soot on and regenerate filtering element and therefore regenerate said nickel based catalyst.

With respect to claim 26, Hayashi as modified teaches wherein the soot removing means/heater (fig. 1, 41) contacts soot that has been trapped by the soot trapping means with oxygen-containing gas/by means of burning (col. 2, lines 58-65).

Regarding limitations recited in claim 26 which are directed to a manner of operating disclosed device, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Response to Arguments

4. Applicant's arguments with respect to claims 1, 3-4, 7, 10, 13, 19-22, 25-26, and 31 have been considered but are moot in view of the new ground(s) of rejection as necessitated by applicant's convincing remarks regarding the combination of references

in relation to the claimed honeycomb comprising a first material and a second inactive material coating as instantly claimed. Therefore, a new rejection is set forth above in view of Hayashi. Hayashi teaches an apparatus (figures 1 and 3) comprising a particulate filter unit (15) comprised of a first material/corderite honeycomb coated with a second material/layer of alumina and a layer of catalyst comprising platinum (col. 5, lines 4-7).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAITY V. HANDAL whose telephone number is (571)272-8520. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. V. H./ 10/29/08
Examiner, Art Unit 1795

/Alexa D. Neckel/
Supervisory Patent Examiner, Art Unit 1795